

Technical Report 1045

An Experiment Investigating the Effects of Requesting-vs--Not-Requesting Demographics in an Anonymous Army Survey on Sensitive Topics

Joel M. Savell and Andrea J. Bright
U.S. Army Research Institute

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FOREWORD

The research reported here is the latest in a series of investigations inquiring into the quality/interpretability of Army survey data. One of these investigations (Research Report 1649) showed that one of the Army's standard survey items had been providing data that were difficult to interpret because of the way the item was worded. A second investigation in this series (Research Report 1650) provided evidence that many soldiers are concerned about their identifiability in surveys that include questions on sensitive topics--even when they are responding anonymously. Such concerns are believed to reduce the candidness with which soldiers respond to the questions and thus the interpretability of data obtained from the responses to these questions.

The present research investigated the effects of a commonly used procedure (asking respondents to provide demographic information about themselves) on the candidness with which these respondents answered sensitive survey items.

The Army relies heavily on surveys of soldiers to inform its decisionmaking in policy areas; the quality of the data obtained is a constant concern.

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AN EXPERIMENT INVESTIGATING THE EFFECTS OF REQUESTING-VS-NOT-REQUESTING DEMOGRAPHICS IN AN ARMY SURVEY ON SENSITIVE TOPICS

EXECUTIVE SUMMARY

Research Requirement:

Data from previous research suggest that, in the eyes of many soldiers, standard military and social demographics (Army rank, post, type of unit, race, gender, etc.) can be used indirectly to identify respondents individually--even where no explicit identifier (name or social security number) is asked for. In other words, for these soldiers, the fact that they are not explicitly identified in the survey does not mean that they are not identifiable. If there are many soldiers who hold this belief, and if the belief leads these soldiers to be less than candid in responding to survey questions, the Army will need to find ways of reducing soldiers' concerns in this regard. The goal of this research was to provide evidence on this question.

Procedure:

A total of 100 male junior enlisted soldiers took part in this experiment. At each of four sessions, approximately 25 soldiers assembled in a classroom, where they completed a 44-item personnel survey and a 15-item Research Questionnaire. There were two forms of the personnel survey, experimental and control, and at each session half the soldiers (randomly selected) received one form and half received the other. After all soldiers had completed the Research Questionnaire, each soldier put his personnel survey and the Research Questionnaire into a brown ARI-letterhead mailing envelope, sealed it, and returned it to the Principal Investigator (PI), who was administering the materials. Following the last two sessions, the PI lead a brief discussion of soldiers' reactions to the survey and the follow-up Research Questionnaire.

Findings:

The results provided only mixed support for the hypothesis. The data indicated that the soldiers were clearly aware that, according to their experiment condition, their survey instrument had or had not included demographics. Moreover, soldiers whose survey instrument included demographics were found more often to have omitted an item than was the case for soldiers whose instrument did not include the demographics. But for the items that were responded to, soldiers in the experimental and conditions answered pretty much in the same way.

Utilization of Findings:

The data (from the two forms of the personnel survey instrument, the Research Questionnaire, and comments made by soldiers after the last two sessions) will be used to design a second experiment--one that can provide more clear-cut answers (one way or the other).

AN EXPERIMENT INVESTIGATING THE EFFECTS OF REQUESTING-VS-NOT-REQUESTING DEMOGRAPHICS IN AN ANONYMOUS ARMY SURVEY ON SENSITIVE TOPICS

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AN EXPERIMENT INVESTIGATING THE EFFECTS OF REQUESTING-VS-NOT-REQUESTING DEMOGRAPHICS IN AN ANONYMOUS ARMY SURVEY ON SENSITIVE TOPICS

INTRODUCTION

Background

This report addresses a question that has implications for people who see and interpret survey data obtained from military personnel--viz., whether the respondents have been candid in responding to the questions that were asked (Tourangeau & Smith, 1996; Bradburn, 1983) and, if not, why. Over the years there has been a good deal of research on this question, as reviews by Singer (1993) and Singer, Von Thurn, and Miller (1995) have amply documented. One of the conclusions from these reviews is that although assurances of confidentiality can improve data quality, they are unlikely to improve it very much (and probably not at all unless the questions are threatening). Moreover, in some situations (Singer, Hippler, & Schwarz, 1992), an assurance of confidentiality can backfire (particularly if the assurance is strong and/or detailed, leading participants to see the prospective questions as more sensitive or threatening than they otherwise would have). The present research focused not on confidentiality but on anonymity. Assurances of confidentiality tell participants in effect that "the wrong people" will not be able to connect them with their responses. Assurances of anonymity tell them that nobody--not even the person administering the survey--the PAS--will be able to make the connection. There is reason to think, however (Savell, 1993), that such assurances (whether of confidentiality or anonymity) are not always believed (or believed by every soldier)--at least when certain rather commonly-observed conditions obtain.

Some Commonly Observed Conditions

Soldiers' perception that they can be identified from their demographics. Some soldiers apparently believe that, by deduction, the Army can, if it wishes, identify them personally based simply on the demographic information they provide about themselves (Savell, 1993; Wilson & Rosen, 1975). One would expect that, if a soldier has concerns about his/her identifiability, the effects of these concerns would be particularly strong where the soldier falls in one of two categories. The first category includes soldiers whose combination of demographics makes them, in relation to their unit, a potentially recognizable minority (in some cases, a minority of one). The other (sometimes-but-not-always-overlapping) category includes soldiers who have been selected from their unit to take part in a survey and who, while together in the survey room, have (due to the paucity of participants in the room who share their characteristics) become members of what may be called a "situationally-determined minority" (again, in some cases, a minority of one). In either case, this perception of being part of a demographic minority (including a minority of one) would be expected to affect participants' willingness to respond candidly to sensitive survey items--particularly in cases where the statuses are, for one reason or another, more "visible."

Soldier uncertainty as to whether the promised anonymity can be ensured by the PAS. Soldiers may not know (particularly if this person is a civilian) whether he/she is, organizationally, sufficiently independent of the local chain of command to be able to ensure the confidentiality or

anonymity that has been promised; and respondents' concerns in this regard are likely to be greater when survey items are sensitive. Data from two studies (Savell, 1993; Wilson & Rosen, 1975) suggest that, in cases like these, soldiers are more likely to experience such uncertainty (and, as a result, provide lower quality data) when the survey is administered by unit or other local military officers or NCOs than when it is administered by a visiting civilian scientist who serves as the PAS. What is at issue of course is not who the PAS is per se but how this person is perceived by the individual soldier who is asked to respond to the survey. And this presumably can be affected by a number of things--including what the local commander says to the soldiers about the survey, its sponsorship, its intended use, and its probable usefulness to the Army...

Beliefs by respondents that they are or can be observed by local Army staff. Some soldiers apparently believe (Savell, 1993) that procedures occasionally employed in administering a survey make it possible for local unit leaders to see how they are responding to sensitive items¹. One such procedure (seen mainly in surveys involving junior enlisted soldiers) is the use of one or more local-unit NCOs to monitor the behavior of their soldiers during the survey session. A related procedure is that of requiring unit NCOs (usually as the soldiers enter the survey room) to check their soldiers' names and/or Social Security numbers (SSNs) against a unit roster as a way of confirming their attendance at the session. A third such procedure is the administering of surveys in small groups. Some soldiers have said (Savell, 1993) that they feel more anonymous, more "deindividuated" (see also Diener, Lusk, DeFour, & Flax, 1980), in a large group than in a small one. A fourth procedure (used mainly in mail self-administered surveys) is the practice of having participants deliver their completed questionnaires to a designated unit officer or NCO. In such cases, participants usually deliver their questionnaire in a sealed envelope that has been provided to them; but this seems not always to be the case (Savell, 1993). And even where appropriate precautions are taken, some soldiers still entertain doubts as to whether their answers to the sensitive questions will remain private (Savell, 1993). Available data on these matters are at this point only suggestive since, to our knowledge, experimental investigations of such behavior

¹ Several junior enlisted soldiers told us they believed that, while the survey was being administered, they were surreptitiously observed and/or identified by means of one or more of several procedures--e.g., filming them with cameras hidden in the air vents or printing the survey booklets on a type of paper that could pick up their finger prints. We don't know how common such beliefs are but would guess they would be found less frequently among soldiers at higher ranks or higher education levels.

have not until now been conducted.² We assume that individual-difference factors³ (most of them perhaps reflecting differences in personal history) interact with the variables discussed above, producing effects that are stronger or weaker depending on the strength or weakness of the individual-difference factors. But if it is true that significant number of soldiers question the anonymity assurances they are given in Army surveys, and if among these soldiers there are many who as a consequence respond to sensitive items less candidly than they otherwise would, the quality (and thus the interpretability) of Army survey data on such issues is itself called into question.

Objective

As indicated above, there is reason to think that, in responding to anonymous surveys on sensitive topics, not all soldiers accept the assurances of non-identifiability they are given--at least not where one or more of certain rather commonly observed conditions obtain. The objective of the present research was to provide evidence on one of these conditions--viz., soldiers' perception that they can be identified from their demographics. Our research question was whether, in an anonymous survey, not asking soldiers to provide demographic information about themselves results in soldiers' (a) expressing fewer doubts about their anonymity in the survey (proximal effect) and (b) responding to the sensitive items in a more candid, less socially desirable manner (distal effect). The research was considered preliminary because many of the items (as re-worded) had not been used before (none of them had been used before in the present context) and also because our assumptions about perceived anonymity had not previously been tested.

² The data reported by Wilson and Rosen (1975) came from what might be called an "imagining" experiment. In that experiment, subjects were not exposed to actual experimental treatments; rather, they were told about each of several such treatments (including anonymity and non-anonymity) and asked to say how they would respond under each of these conditions. Wilson and Rosen (1975) reported that soldiers who were asked to imagine that they were responding anonymously answered questions in a way that was less guarded, less socially desirable than was the case for soldiers who were asked to believe they were responding non-anonymously. As those investigators pointed out, however, no data were reported on the participants' actual behavior.

³ In one study (Savell, 1993) a number of soldiers who were members of ethnic minority groups voiced a belief which, while not directly related to anonymity concerns, holds potential for reducing data quality in surveys that address sensitive issues. According to these soldiers, a survey that asks how often the respondent engages in certain "bad" behaviors usually includes a set of demographic items (which nearly always include items about race and/or ethnicity). The reasons the sponsor includes race/ethnicity items, these soldiers said, is to make it possible for this sponsor to demonstrate the greater frequency with which the indicated behaviors are engaged in by minorities. We are not sure how widespread such beliefs are, but Mael, Connerly, and Morath I (1996) found in a recent study that African American soldiers in his study scored higher than other soldiers on a measure of "need for privacy."

METHOD

Participants

Participants were 100 male⁴ junior enlisted soldiers (E1-E4) from TOE⁵ units at Ft. Lewis. Additional information about these soldiers is provided in Appendix A.

Survey Materials

Form DI (Demographics included). For this form the first 13 items consisted of items (mainly checklists) that asked soldiers for standard military and social demographic information about themselves: (1) current installation (e.g., Ft. Benning, Ft. Lewis, Ft. Riley), (2) type of unit (e.g., finance, infantry), (3) kind of unit (e.g., combat arms, combat support, combat service support), (4) marital status, (5) rank, (6) total years of federal military service, (7) primary Military Occupational Specialty (MOS), (8) whether the respondent was currently working in either his primary or his secondary MOS, (9) gender, (10) whether he was of Hispanic/Latino ancestry, (11) racial background, (12) years of formal education, and (13) age on last birthday.

Form DNI (Demographics NOT included) For this form the first 13 items did not ask for respondent demographics. Instead, as a way of trying to equalize respondent burden in the two conditions, we substituted 13 other items. For example, soldiers completing Form DNI were asked about the extent of their agreement with such assertions as "Army mail delivery is handled well" and "Army jobs are sometimes boring." For each of these substitute items the response alternatives were presented in a 5-point scale, ranging either from STRONGLY AGREE to STRONGLY DISAGREE or from STRONGLY DISAGREE TO STRONGLY AGREE.. (These substitute items were presumed to be innocuous, but we have no data on this)

Both forms. Starting with item 14, the questions were the same in both forms. These questions asked about the respondent's practices with regard to gambling ($n=19$) and smoking ($n=3$) and their use of smokeless tobacco ($n=2$), alcohol ($n=2$), and drugs ($n=3$). All items were, with minor modifications, taken from an Armywide survey administered the previous year by the Army's Personnel Survey Office (APSO).

⁴ Nearly all the soldiers that were sent to us were from infantry units, and all of them were male. The NCOs who accompanied them were male also.

⁵ The term "TOE" (Table of Organization and Equipment) refers to types of units that one ordinarily thinks of in connection with the Army—platoons, companies, battalions, etc. Civilian employees of the Army are not assigned to these units

The research questionnaire. The research questionnaire, which was administered immediately following the completion of the personnel survey, had two purposes: (1) to provide information about soldiers' reaction to the sensitive items in the personnel survey instrument and (2) to provide an indirect or projective measure of the dependent variable (see below). The Research Questionnaire also sought information on a number of other issues (e.g., whether the soldier was aware of the experimental conditions under which he was responding).

Dependent Variables

Direct measures. As indicated above, the personnel survey items, starting with item 14, asked respondents about their practices with respect to the indicated behaviors. The research question here was whether, as a group, DNI subjects would be willing to acknowledge such behaviors to a greater degree than would DI subjects. Three indicators of such willingness--not all indicators were used with every topic--were the extent to which respondents said they had engaged in the behavior, the age at which they said they had started engaging in it, and, in addition, whether they failed to respond to an item asking about the behavior.

Indirect measures. Most of the items in the Research Questionnaire asked subjects to estimate the number of soldiers ("soldiers like yourself") who would, in specified ways, respond noncooperatively or otherwise in a negative fashion to the personnel survey. We wanted to find out whether DI subjects would projectively predict negative responses on the part of these other soldiers to a greater extent than would DNI subjects--for example, to more say more frequently that they thought other soldiers would intentionally give a wrong answer to some of the survey questions. The ten items in the research questionnaire that were of this sort formed a scale, with $\alpha = .77$.

Procedure

At each of four survey sessions approximately 25 soldiers were brought to a designated classroom by their unit leader. The leader marched his soldiers single file to their (individual) writing tables and told them to seat themselves. The leader then left; and the PAS, a male research psychologist from ARI, explained what he wanted the soldiers to do. He told the soldiers that they would first complete an "Army Personnel Survey" (holding up a copy) and that then, after everyone had completed the survey, they would fill out the "Research Questionnaire" (holding it up). He then told them that the PAS would ask them some questions about the survey they had just completed. and that, when they had completed both forms of the questionnaire, they were to put them into the mailing envelope that was on their desk, seal the envelope, and , when asked to do so, the PAS them down the aisle to the front of the room, where they would be collected by the PAS.

Design. The design was viewed as a random replications design (Lindquist, 1953), with the independent variable (DI Vs DNI) manipulated in each of four sessions. Three sets of dependent variables (two sets of direct measures and one set of indirect measures) were examined separately via one-way ANOVAs.

Assumptions About Steps in the Process

The main hypothesis of this experiment assumes a four-step process.

Step 1. Randomly-selected soldiers are asked to provide demographic information about themselves just prior to completing an Army personnel survey on sensitive topics.

Step 2. Some of these soldiers, even in an anonymous survey, believe that providing this kind of information makes it possible somehow for the Army to connect them with the responses they give to the survey items. (Of those soldiers who are not asked to provide the demographic information, some may believe this also; but for them the issue is hypothetical since they are not asked to provide the indicated information.).

Step 3. Of the soldiers who are asked to provide demographic information about themselves and who believe that providing this information makes it possible for the Army to identify them individually (Step 2 above), some decide that the substantive questions in the survey (at least some of them) are too personal or otherwise objectionable and that they do not want the Army to know how they would respond to these items if they responded truthfully.

Step 4. These soldiers choose and then act upon some strategy they believe will keep the Army from being able to connect them individually with their true survey responses (Savell, 1993). For example, they might decide to (a) omit or falsify their response to one or more of the demographic items, (b) give incorrect (less candid, more socially desirable) responses to the substantive items, or (c) both.

The research design called for collecting data on each of these steps.

RESULTS

Bearing on Step 1

As indicated above, the experimental manipulation consisted of asking-versus-not-asking participants to provide standard demographic information about themselves. To validate the experimental manipulation (i.e., to confirm that subjects had understood the salient features of the experimental condition to which they had been assigned) and to make sure there had been no slip-up in the collating and distributing of survey forms, we included the following question in the research questionnaire:

Did the Army survey ask you for background information
about yourself--your rank, MOS, education, race, and so forth?

* YES

* NO

Of the 51 subjects in the DI condition, 50 responded YES; and of the 49 subjects in the DNI condition, all 49 responded NO, $X^2(1, N=100) = 92, p < .001$. A second question asked: "Did it ask for your name or social security number? As expected (since no soldiers were asked to provide this information), all subjects said NO. Responses to the first question show (a) that DI participants were indeed aware of the fact that they had been asked for (and had in fact provided) standard demographic information about themselves and (b) that DNI participants were aware of the fact that they had not been asked to provide such information. Responses to the second question indicate that subjects accepted the fact that they had not been asked to identify themselves explicitly and that--at least, in this respect--their responses to the personnel survey were anonymous. The first step in the 4-step process was thus supported.

Bearing on Step 2

The second step says that soldiers who have provided demographic information about themselves are more likely to believe they can be identified than soldiers who have not been asked to provide such information. One of the items in the Research Questionnaire read as follows:

If someone wanted to, would it be possible for them to
connect you personally with your answers in the survey?

1. No, definitely not
2. No, probably not
3. Not sure
4. Yes, probably
5. Yes, definitely

Our expectation was that scores would be higher in the DI than in the DNI condition, and that is indeed what we found. For subjects in the DI condition, the mean was 2.98; while for subjects in the DNI condition the mean was 2.49, $F(1,98) = 4.37$, $p < .04$. Thus, consistent with expectations --though the effect was not very large--DI subjects were more likely than DNI subjects to be believe they could be connected with their answers. The data thus generally support the validity of Step 2.

Bearing on Step 3

The third step says that participants in the survey, after deciding that there is a possibility they could be personally identified from the demographic information they provided about themselves, make the judgment that the substantive items in the survey (at least some of them) are too sensitive or threatening and that they (as well as other soldiers like themselves) could bring negative consequences upon themselves by responding to the questions candidly.

General liking for the survey. On the assumption that people react more negatively to a survey if they doubt the anonymity of their responses to sensitive questions, we constructed a 10-item scale measuring overall (both own and attributed) liking for the survey. The scale consisted of all the general attitude questions from the Research Questionnaire. On this scale, DI subjects responded to the personnel survey less favorably than DNI subjects (means of 2.54 and 2.82 and respectively, $F(1/98) = 8.39$, $p < .005$).

Overall (attributed) attitude toward the personnel survey. As noted earlier, we constructed a 10-item attitude scale ($\alpha = .77$) measuring negative reactions to the survey as a whole. Several questions asked subjects to make judgments (presumably projecting their own feelings onto others) as to how many soldiers would respond to the Army survey questions in a negative or noncooperative manner. Response alternatives (with minor variations) were:

1. Almost none
2. Fewer than half
3. About half
4. More than half
5. Almost all

On this scale, mean scores for DI and DNI subjects were 2.14 and 2.21 respectively, $F(1/98) < 1$, $p > .05$. Overall, these indirect, projective measures provided no evidence that the DI subjects responded to the personnel survey more negatively than did DNI subjects.

Potentially threatening or sensitive nature of the survey items. Two of these items asked specifically whether the survey questions seemed "too personal."

How many soldiers will think some of the questions are too personal?

1. Almost none
2. Fewer than half
3. About half
4. More than half
5. Almost all

How about you? Did you feel some of the questions were too personal?

1. No, almost none
2. Yes, but fewer than half
3. About half
4. Yes, more than half
5. Yes, almost all

For this 2-item scale ($r = .54$, $N = 100$) our expectation was again that the mean would be higher in the DI than in the DNI condition. The mean for DI subjects was 1.82, and the mean for DNI subjects was 1.59; $F(1,98) = 1.62$, $p > .05$. The difference, while in the predicted direction, was not statistically reliable; and the absolute magnitude of the two means is surprisingly small. This analysis thus provided no evidence that the two groups of subjects, DI and DNI, found the survey questions differentially objectionable--or at least, not differentially personal. .

Seriousness with which the personnel survey was taken. Two of the items ($r = .77$) asked implicitly about the seriousness with which other soldiers would approach the survey:.

How many soldiers will "read all the survey questions carefully."

1. Almost none
2. Fewer than half
3. About half
4. More than half
5. Almost all

How many soldiers will make sure they understand each question before answering it?

1. Almost none
2. Fewer than half
3. About half
4. More than half
5. Almost all

Mean response for DI and DNI respondents was 2.29 and 2.50 respectively, $F(1/98) < 1$, $p > .05$. Again, therefore (though the differences were in the expected direction), the data provided no evidence that DI soldiers were taking the survey less seriously than were the DNI soldiers.

One of the questions asked subjects how many soldiers they thought "will try to answer all these questions truthfully and accurately." For subjects in the DI condition the mean was 3.7, while for subjects in the DNI condition it was 3.6, $F(1,98) < 1$. A second question asked how many soldiers the subjects thought "will intentionally give a wrong answer to some of the questions." For subjects in the DI condition the mean was 2.0, while for subjects in the DNI condition it was 2.2, $F(1,98) < 1$. A third question asked how many soldiers "will intentionally LEAVE OUT some of the questions." For subjects in the DI condition the mean was 1.6, while for subjects in the DNI condition it was 1.5, $F(1,98) = .53$, $p > .05$. A measure combining all three items⁶ showed DI subjects with a mean of 2.0 and DNI subjects with a mean of 2.0, ($F(1/98) < 1$). On all of these specific, indirect measures, therefore, the mean response was essentially the same in the DI and DNI conditions--again contrary to expectations.

Demographic Subgroup Analysis

In view of the fact that requesting/not-requesting demographic information was the experimental variable, demographic information is available for only half the subjects--that is, subjects in the DI condition. The subjects from whom this information was obtained were, however, a random half; and it is reasonable to assume that the demographic information about subjects who were not asked for it is not too different from the corresponding information about those subjects who were asked for it. With this assumption, we conducted the following analyses on demographic subgroups.

General status as a demographic minority. We identified five demographic characteristics with respect to which the soldiers for whom we had the relevant data (i.e., the 51 soldiers in the DI condition) could be classified as being in a definite numerical majority versus a definite numerical minority. These characteristics were as follows: (a) Member of combat arms unit versus

⁶ The first item was reverse-coded.

member of other type of unit (ns : 37 & 10); (b) Marital status single Vs other marital status (ns : 33 & 18); (c) High school graduate or GED Vs additional years of education (ns : 36 & 14); (d) NOT Hispanic/Latino ancestry Versus some Hispanic/Latino (ns : 43 & 8); and (e) Racial background White Vs Other (ns : 37 Vs 12). Scores on these five variables were combined and subjected to an analysis of variance (ANOVA). The combined inority/combined-majority measure did not show any significant effects on the dependent variables of interest.

Minority status based only on race. The racial background item, when response alternatives were combined into white Vs other, did not show any significant effects on the measures of interest $ps > .05$, though most differences were in the predicted direction. Only 2 out of the 51 soldiers said, in response to the item, that they were black. This number, made even smaller by the several instances of nonresponse, was considered too small to use for an analysis comparing black and white respondents.⁷

Minority status based on Hispanic/Latino/Latino ethnic heritage Following up some respondent comments summarized in an earlier report (see Footnote 3), we compared attribution responses from those who did and did not say they had an Hispanic/Latino heritage. Compared with soldiers without this heritage, soldiers who did have an Hispanic/Latino heritage said they believed (a) that fewer soldiers (2.35 Vs 3.50) would enjoy taking the survey, $F(1/49) = 4.48$, $p < .04$; (b) that fewer soldiers would read all the survey questions carefully (1.38 Vs 2.33), $F(1/49) = 8.96$, $p < .004$; and that (c) fewer soldiers (1.88 Vs 2.51) would make sure they understood each question before answering it, $F(1/49) = 6.34$, $p < .02$. A combined measure of race and ethnic minority status correlated positively ($r = .32$, $n = 47$, $p < .03$) with respondent uncertainty about whether someone could, if they wanted to, connect them with the answers they gave in the survey. Finally, drug use (in our sample of 51) was acknowledged to a greater extent by soldiers at the E4 level than by soldiers at the E2-E3 level ($r = .42$, $n = 48$, $p < .004$) and to a greater extent by soldiers with at least some college than by those with a high school diploma or less ($r = .44$, $n = 48$, $p < .002$).

Thus far we have been able to establish the following: (STEP 1) that essentially all soldiers had been aware of the distinctive aspects of their experimental condition and (STEP 2) that DI soldiers (who were asked to provide standard demographic information about themselves) were less doubtful that they could be identified than were DNI soldiers (who were not asked to provide this information). We have not, however, shown (STEP 3) that DI subjects (or DNI subjects either) saw the survey questions as particularly objectionable (though they seemed to enjoy the survey less). The issue for STEP 4 concerns the distal effect of the experimental variable on the primary dependent variables--that is, whether DI subjects responded to the questions on gambling,

⁷ The PAS's impression during the survey was that there were fewer black soldiers in the 4 groups than one would have expected. A (black) company first sergeant, when later asked about this, said he thought the larger unit unit had fewer black soldiers than some of the other units; but we have no confirmatory data.

drinking, and so forth, differently from the way DNI subjects responded to them.. First, were DI subjects more likely than DNI subjects to omit some of these questions? Second, were DI subjects more likely than DNI subjects to respond to these questions in a cautious, socially desirable manner? Third, were DI subjects more likely than DNI subjects to see other soldiers as not responding cooperatively to these questions?

Omitted responses. In each condition most subjects answered all the questions, but there were differences between the conditions. In the DI condition ($n=51$) there were nine subjects who omitted one or more questions while in the DNI condition there were only two, $\chi^2(1, N = 100) = 4.70, p < .05$.⁸ Thus, consistent with expectations, DI subjects were more likely (although only somewhat) to omit an item than were DNI subjects.

Response to questions on gambling, tobacco, drinking, and drugs. Thirty-one questions on these topics were asked, and a scale was computed for each topic.⁹ More soldiers at the top half of the grade distribution (E4) acknowledged drug use than was the case for soldiers at lower half (E2-E3), $\chi^2(1, N = 49) = 6.17, p < .025$, and soldiers with more years of formal education had higher drug-use scores than soldiers with fewer years of formal education.¹⁰ An ANOVA performed on each of the four scales, however, as well as on the overall mean of the scales, provided no support for the central hypothesis of the research. Only one of the four scales (use of drugs) showed a significant effect ($p < .05$), and it was in the opposite direction from the one predicted. These results are shown in Table 1.

SUMMARY AND DISCUSSION

In this experiment 100 male junior enlisted soldiers completed a standard Army survey and then completed a "research questionnaire" that asked them about the survey. For a randomly-selected 51 of these soldiers (Condition DI: Demographics Included), the survey booklet included a standard set of 13 demographics while for the other 49 soldiers (Condition DNI: Demographics Not Included) the survey booklet included instead an equal number of innocuous nondemographic items. Our main hypothesis was that soldiers in the DI condition would, following an assumed 4-step process, respond to sensitive items more cautiously than soldiers in the DNI condition.

⁸ Six items asked about "gambling in the last 30 days," and three asked about "smoking."

⁹ Scale intercorrelations were as follows: .24 for gambling and use of tobacco, .28 for gambling and use of alcohol, .16 for gambling and use of drugs, .35 for use of tobacco and use of alcohol, .37 for use of tobacco and use of drugs, and .56 for use of alcohol and use of drugs.

¹⁰ In a recent study, Mael, Connerly, and Morath (1996) found that soldiers with more years of formal education rated more biodata topics as "invasive" than was the case for soldiers with fewer years.

Responses to the substantive items in the survey generally failed to support the hypothesis, while responses to questions about soldiers reaction to the survey (particularly in the case of racial or ethnic minority soldiers) provided some support. Virtually every soldier correctly reported

Table 1
DI and DNI Responses to Survey Items, by Topic

TOPIC	Experimental Condition		<u>df</u>	<u>F</u>
	DI	DNI		
Gambling	1.54	1.53	1/94	<1
Use of Tobacco	1.71	1.60	1/96	<1
Alcohol	3.46	3.06	1/97	<1
Drugs	1.83	1.47	1/98	4.16*
TOTAL	2.14	1.92	1/98	2.36

* $p < .05$

Note. Items did not always have the same number of response alternatives.

whether he had or had not been asked to provide demographic information about himself; and, consistent with expectations from this fact, DI soldiers were more likely than DNI soldiers to believe they could be connected with the responses to the survey. In other words, (a) soldiers correctly understood the primary feature of the particular experimental treatment to which they had been exposed; and (b) they said they experienced the expected proximal effect of this understanding. Thus--the immediate objective of the experimental manipulation--they had either more or fewer doubts about their anonymity depending on whether they were in the DI or the DNI condition. Evidence of distal effects, however, was mixed at best. While DI subjects were more likely than DNI subjects to omit one or more of the sensitive items, their responses to the sensitive items they did complete did not differ from the responses that were given by the DNI

subjects. Moreover, with one exception, DI subjects said they did not expect other soldiers like themselves to respond any differently than the DNI subjects. The exception was soldiers who identified themselves as being of Hispanic/Latino ancestry. Soldiers in this category, in comparison with soldiers not in this category, had a lower estimate of the number of soldiers who would enjoy taking the survey, would read all the questions carefully, and would make sure they understood each question before answering it.

How does one explain these results? One possibility (considering the group as a whole) is that not more than a small number of junior enlisted soldiers engage in the behaviors that the survey asked about, that no more than a small number of them gamble, smoke, use smokeless tobacco, drink, or take drugs. If these behaviors are simply not often engaged in, our sample (total $N=100$) may simply have been too small (and/or our measures too insensitive) to be able to detect some of the differences between DI and DNI conditions. Such a possibility cannot be rejected out of hand, but it conflicts with data collected more informally from focus groups in another setting (Savell, 1993)

A second possibility is that, with respect to the behaviors asked about in this study (gambling, smoking, use of smokeless tobacco, alcohol, or drugs), our four-step hypothesis is simply not in accord with the facts. Maybe the sensitive questions in this survey were not so sensitive after all. Maybe soldiers who gamble or use drugs do not mind acknowledging this fact in an Army survey. This possibility, while it cannot on the basis of present evidence be dismissed, is counter-intuitive as well as inconsistent with what soldiers have said about own their behavior in other research (Savell, 1993; Wilson & Rosen, 1975).

A third possibility focuses on the nature of the population from which the sample was drawn. The soldiers were all in their first term of enlistment, and their average time in service was less than two years. In fact, the majority of respondents said that the present survey was the first survey they had completed since joining the Army. It is possible that many of these soldiers had not yet acquired the suspiciousness of attitude surveys (and perhaps concern about the possibility of jeopardizing their career) which one sometimes finds in soldiers who have been in the Army longer and/or are of higher rank (Savell, 1993). As noted earlier, the present study (using only junior enlisted) found greater acknowledgment of drug use among higher-ranking soldiers than among those who were at a lower rank or grade. Also, there was greater acknowledgment of drug use among those with more years of formal education. Our data do not tell us, however, whether this relationship is due to actual differences in drug-taking behavior on the part of those with more and fewer years of formal education, to differences in willingness to accept the PAS assurances of confidentiality, or to something else. In any event, as a way of checking on this possibility, one could introduce educational level and rank or time-in-service as classification variables in a treatment-times-level design (Lindquist, 1953). Such "different-population explanations would be supported if the DI-DNI manipulation affected respondent candidness to a greater extent in, say, the higher-rank or education levels than in the lower-rank or education levels, with potentially confounding variables controlled..

A fourth possibility concerns the PAS and whether the PAS was seen by participating soldiers as (organizationally) sufficiently independent of the local chain of command to be able to control who is and is not permitted to see (or be briefed on) data concerning individuals. If in this experiment the PAS conveyed to the subjects that he could and would exert such control (even without explicitly saying so), he may inadvertently have diluted the effects of the experimental manipulation by turning both DI and DNI conditions effectively into a single, anonymous condition. Alternatively, if soldiers came to their sessions assuming that the PAS (perhaps in his pre-departure briefing) would be expected to tell the commanding officer whatever this person wanted to know about the results of the survey, this assumption on the part of the soldiers could have diluted the effects of the experimental treatments by turning DI and DNI conditions effectively into a single, nonanonymous condition. The low scores observed on the (indirect) attribution measures, as well as the (direct) acknowledging of the negative behaviors, seem consistent with this possibility. To check on this fourth possibility, one could manipulate the variable of how the PAS is perceived. One way of going about this would be to use local Army personnel in one condition and nonlocal civilian researchers in the other (see Wilson and Rosen, 1975). Or, better still (if it could be carried off), one might use only one set of people as survey administrators, with attire and grooming systematically varied, and introduce them as civilian researchers in one condition and as local staff officers or NCOs in another. Yet another way of operationalizing this variable would be (explicitly or implicitly) to inform subjects differentially about the independence of the PAS. The "civilian" PAS (and preferably the military PAS as well) would in some cases be presented as unambiguously independent and in other cases as not independent. The "PAS explanation" would be supported if the DI-DNI manipulation is found to affect subject candor when the PAS is viewed as independent but not to have this effect when the PAS is viewed as not independent. In addition, such an effect (assuming that the effect could be replicated) would indicate that the PAS characteristics interact with the inclusion/noninclusion of standard military and social demographics and that using the PASs not viewed by soldiers as organizationally independent could, when survey items are sensitive, produce more than its share of noncandid responses.

There may of course be other explanations for the general failure of the expected DI-DNI effects to appear. For example, some of the data suggest that the hypothesized effect of including demographics in a survey is greater for people in some demographic categories (e.g., minority race and/or ethnicity) than it is for people in other such categories; and it is possible that our sample (potential n equal to or less than 51) was simply too small to detect this effect. Also, it is possible that more than one of these explanations is relevant. In that case, one would want to consider using a more complex design and testing two or more explanations in a single experiment.

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APPENDIX: ADDITIONAL INFORMATION ABOUT THE PARTICIPANTS

(Based on Data from the DI Condition ($n=51$))

1. All 51 (100%) correctly indicated that their post/installation was Ft. Lewis.
2. Forty-nine (96%) said they were in an infantry unit, one (2%) said "medical", and one (2%) said "other."
3. Thirty-seven (73%) said their unit was a combat arms unit, two (4%) said their unit was a combat service support unit, eight (16%) said they did not know, and four (8%) failed to answer the question.
4. Thirty-three (65%) said they were single, 17 (33%) said they were married, and 1 (2%) said he remarried after being divorced or widowed.
5. 12 (24%) said their rank was PV2, 13 (25%) said they were PFC, 25 (49%) said they were CPL/SPC, and 1 (2%) erroneously marked 03.
6. The number of years of active federal military service ranged from five to less than one, with a median of two years.
7. The MOSs represented were 11B (34 or 67%), 11C (9 or 17%), 11H (4 or 8%), and 91B (4 or 8%).
8. 49 (96%) said they currently worked in their primary or secondary MOS, while two (4%) said they did not.
9. All 51 (100%) of the soldiers were male)
10. 37 (73%) said they were White, 2 (4%) said they were Black, 6 (12%) said they were Asian or Pacific Islander, 4 (8%) said they were American Indian, Eskimo, or Aleut, and 2 (4%) failed to answer the question.
- 11.. In response to a separate question asking whether they were of Hispanic/Latino/Spanish origin or ancestry, 43 (84%) said No; 5 (10%) said Yes, Mexican; 1 (2%) said Yes, Puerto origin and 2 (4%) said Yes, other. Cross-tabulation of responses to this item and the preceding one showed that the two subjects who failed to answer the race question (item 10) had indicated, in response to the ethnicity question (item 11), that they were Mexican-American.

12. 36 (71%) said they had a high school diploma or GED, 9 (18%) said they had 1-2 years of college, 2 (4%) said they had an Associate degree, and 3 (6%) said they had 3-4 years of college.

13. Reported ages ranged from 18 to 35, with a median of 20 (Two subjects failed to indicate their age.)